

WHAT IS CLAIMED IS:

- 1                   1. A portable saw having a housing, a handle affixed to the housing,  
2                   a motor oriented in the housing, a saw blade operably driven by the motor for  
3                   performing a cutting operation, and an adjustable base affixed to the housing for  
4                   permitting selective adjustment of the base relative to the housing, the adjustable  
5                   base comprising:
  - 6                   a longitudinal shell having a generally arcuate cross section with an  
7                   outer region secured to the housing and an inner region facing away from the  
8                   housing, the shell having a longitudinal axis generally parallel with a cutting plane  
9                   of the saw blade, the shell having a transverse slot formed therethrough;  
10                  a baseplate affixed to the shell, the baseplate having a generally  
11                  planar contact surface spaced apart and opposed from the housing for engaging a  
12                  workpiece and supporting the saw thereon;  
13                  a shaft mounted to the housing for limited rotary and axial movement  
14                  relative thereto, the shaft having a distal end extending from the housing, through  
15                  the transverse slot and into the shell inner region;  
16                  a collar operably connected to the shaft, the collar having a first cam  
17                  surface cooperating with a corresponding second cam surface that is rotationally  
18                  fixed relative to the housing, so that rotation of the collar in an unlock direction  
19                  extends the distal end of the shaft away from the housing, and rotation of the shaft  
20                  in a lock direction retracts the distal end of the shaft towards the housing; and  
21                  a longitudinal clamp member received within the shell inner region  
22                  and cooperating with the shaft distal end for clamping the shell to the housing, the  
23                  clamp member being sized so that the shell inner region can pivot about the clamp  
24                  member as the transverse slot provides clearance for the shaft;  
25                  wherein the shaft is threadably engaged to at least one of the collar,  
26                  the housing or the clamp member so that rotation of the collar in the unlock  
27                  direction either extends the shaft further away from the housing or extends the clamp  
28                  member along the shaft away from the housing, and rotation of the collar in the lock  
29                  direction either retracts the shaft towards the housing or retracts the clamp member  
30                  along the shaft towards the housing thereby permitting the shell to be loosened and

31 secured relative to the housing as the shaft is rotated in the lock and unlock  
32 directions respectively.

1                   2.       The portable saw of claim 1 wherein the portable saw is  
2 further defined as a reciprocating saw.

1                   3.       The portable saw of claim 1 wherein the portable saw is  
2 further defined as a jigsaw.

1                   4.       The portable saw of claim 1 wherein the second cam surface  
2 is fixed relative to the housing, the collar is fixed to the shaft, and the shaft distal  
3 end is threadably engaged to the clamp member so that rotation of the collar in the  
4 unlock direction translates the collar, shaft and clamp member axially away from the  
5 housing due to the cooperating cam surfaces of the collar and the housing, and the  
6 clamp member translates along the shaft away from the housing due to the threaded  
7 cooperation of the shaft and clamp member; and  
8                   wherein rotation of the collar in the lock direction translates the  
9 collar, shaft and clamp member axially towards the housing due to the cooperating  
10 cam surfaces of the collar and the housing, and the clamp member translates along  
11 the shaft toward the housing due to the threaded cooperation of the shaft and clamp  
12 member.

1                   5.       The portable saw of claim 1 wherein the second cam surface  
2 is fixed relative to the housing, the shaft is threadably engaged within the collar, and  
3 the shaft distal end is rotationally fixed to the clamp member so that rotation of the  
4 collar in the unlock direction translates the collar, shaft and clamp member axially  
5 away from the housing due to the cooperating cam surfaces of the collar and the  
6 housing, and the shaft and clamp member extend from the collar away from the  
7 housing due to the threaded cooperation of the shaft and collar; and  
8                   wherein rotation of the collar in the lock direction translates the  
9 collar, shaft and clamp member axially towards the housing due to the cooperating  
10 cam surfaces of the collar and the housing, and the shaft and clamp member retract

11 to the collar towards the housing due to the threaded cooperation of the shaft and  
12 collar.

1 6. The portable saw of claim 1 further comprising a biasing  
2 member for urging the cam surfaces into engagement.

1 7. The portable saw of claim 6 wherein the biasing member is  
2 a spring washer.

1 8. The portable saw of claim 1 further comprising a manual lever  
2 mounted to the collar and extending radially therefrom for facilitating manual  
3 rotation of the collar.

1 9. The portable saw of claim 8 wherein the lever and collar are  
2 formed integrally.

1 10. The portable saw of claim 8 wherein the lever and collar are  
2 formed integrally from a powder metal compressing and sintering process.

1 11. The portable saw of claim 8 wherein the lever and collar are  
2 formed integrally from an investment casting process.

1 12. The portable saw of claim 8 wherein the housing provides  
2 limits to the range of rotation of the lever.

1 13. The portable saw of claim 8 wherein the housing includes a  
2 slot for receiving the lever as it is rotated, the slot being inclined towards the second  
3 cam surface in the lock direction to urge the collar first cam surface and the second  
4 cam surface into engagement.

1 14. The portable saw of claim 1 further comprising a second  
2 collar mounted to the housing, the second collar including the second cam surface  
3 formed thereon.

1                   15.     The portable saw of claim 14 wherein the shaft is journaled  
2     within the second collar.

1                   16.     The portable saw of claim 14 wherein the second collar is  
2     rotationally fixed for limited axial translation relative to the housing.

1                   17.     The portable saw of claim 16 wherein the first collar is fixed  
2     for rotation with the shaft, the shaft is threadably engaged with one of the second  
3     collar and the clamp member and the shaft axially restrains the other of the second  
4     collar and the clamp member towards the first collar in the locked orientation of the  
5     adjustable base.

1                   18.     The portable saw of claim 17 wherein the shaft is threadably  
2     engaged with the clamp member and the shaft axially restrains the second collar  
3     towards the first collar in the locked orientation of the adjustable base so that  
4     rotation of the first collar in the unlock direction permits translation of the second  
5     collar, shaft and clamp member axially away from the housing due to the  
6     cooperating cam surfaces of the first and second collars, and the clamp member  
7     extends along the shaft away from the housing due to the threaded cooperation of  
8     the shaft and the clamp member; and

9                   wherein the rotation of the collar in the lock direction translates the  
10    second collar, shaft and clamp member axially towards the housing due to the  
11    cooperating cam surfaces of the first and second collars, and the clamp member  
12    retracts along the shaft towards the housing due to the threaded cooperation of the  
13    shaft and the clamp member.

1                   19.     The portable saw of claim 17 wherein the shaft is threadably  
2     engaged with the second collar and the shaft axially restrains the clamp member  
3     towards the first collar in the locked orientation of the adjustable base so that  
4     rotation of the first collar in the unlock direction permits translation of the second  
5     collar, shaft and clamp member axially away from the housing due to the  
6     cooperating cam surfaces of the first and second collars, and the shaft and clamp



7 member extend from the second collar away from the housing due to the threaded  
8 cooperation of the shaft and the second collar; and  
9 wherein the rotation of the collar in the lock direction translates the  
10 second collar, shaft and clamp member axially towards the housing due to the  
11 cooperating cam surfaces of the first and second collars, and the shaft and clamp  
12 member retract to the second collar towards the housing due to the threaded  
13 cooperation of the shaft and the second collar.

1 20. An adjustable base for a portable saw having a housing, a  
2 handle affixed to the housing, a motor oriented in the housing, and a saw blade  
3 operably driven by the motor for performing a cutting operation, the adjustable base  
4 comprising:

5 a longitudinal shell having a generally arcuate cross section with an  
6 outer region secured to the housing and an inner region facing away from the  
7 housing, the shell having a longitudinal axis generally parallel with a cutting plane  
8 of the saw blade, the shell having a transverse slot formed therethrough;

9 a baseplate affixed to the shell, the baseplate having a generally  
10 planar contact surface spaced apart and opposed from the housing for engaging a  
11 workpiece and supporting the saw thereon;

12 a shaft mounted to the housing for limited rotary and axial movement  
13 relative thereto, the shaft having a distal end extending from the housing, through  
14 the transverse slot and into the shell inner region;

15 a collar operably connected to the shaft, the collar having a first cam  
16 surface cooperating with a corresponding second cam surface that is rotationally  
17 fixed relative to the housing, so that rotation of the collar in an unlock direction  
18 extends the distal end of the shaft away from the housing, and rotation of the shaft  
19 in a lock direction retracts the distal end of the shaft towards the housing; and

20 a longitudinal clamp member received within the shell inner region  
21 and cooperating with the shaft distal end for clamping the shell to the housing, the  
22 clamp member being sized so that the shell inner region can pivot about the clamp  
23 member as the transverse slot provides clearance for the shaft;

24 wherein the shaft is threadably engaged to at least one of the collar,  
25 the housing or the clamp member so that rotation of the collar in the unlock

26 direction either extends the shaft further away from the housing or extends the clamp  
27 member along the shaft away from the housing, and rotation of the collar in the lock  
28 direction either retracts the shaft towards the housing or retracts the clamp member  
29 along the shaft towards the housing thereby permitting the shell to be loosened for  
30 adjustment and secured relative to the housing as the shaft is rotated in the lock and  
31 unlock directions respectively.

1                   21. A portable saw having a housing, a handle affixed to the  
2 housing, a motor oriented in the housing, a saw blade operably driven by the motor  
3 for performing a cutting operation, and an adjustable base affixed to the housing for  
4 permitting selective adjustment of the base relative to the housing, the adjustable  
5 base comprising:

6                   a longitudinal shell having a generally arcuate cross section with an  
7 outer region secured to the housing and an inner region facing away from the  
8 housing, the shell having a longitudinal axis generally parallel with a cutting plane  
9 of the saw blade, the shell having a transverse slot formed therethrough;

10                  a baseplate affixed to the shell, the baseplate having a generally  
11 planar contact surface spaced apart and opposed from the housing for engaging a  
12 workpiece and supporting the saw thereon;

13                  a shaft mounted to the housing for limited rotary and axial movement  
14 relative thereto, the shaft having a threaded distal end extending from the housing,  
15 through the transverse slot and into the shell inner region;

16                  a collar mounted to the shaft, the collar having a first cam surface  
17 cooperating with a corresponding second cam surface that is mounted to the  
18 housing, so that rotation of the shaft in an unlock direction extends the distal end of  
19 the shaft away from the housing, and rotation of the shaft in a lock direction retracts  
20 the distal end of the shaft towards the housing; and

21                  a longitudinal clamp member received within the shell inner region  
22 and threadably engaged with the shaft distal end for clamping the shell to the  
23 housing, the clamp member being sized so that the shell inner region can pivot about  
24 the clamp member as the transverse slot provides clearance for the shaft so that  
25 rotation of the shaft in the unlock direction extends the clamp member along the  
26 shaft further away from the housing, and rotation of the shaft in the lock direction

- 27 retracts the clamp member along the shaft towards the housing thereby permitting
- 28 the shell to be loosened and secured relative to the housing as the shaft is rotated in
- 29 the lock and unlock directions respectively.